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EX PARTE OR LATE FILED

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+Admitted to Maryland only

James J. Keller*
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*Communications engineer

January 22, 1998

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

RECEIVED

JAN 22 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: EX PARTE PRESENTATION
Cellular Service in the Gulf of Mexico
WT Docket No. 97-112
CC Docket No. 90-6

Dear Ms. Salas:

This letter provides notice that, on January 21, 1998, representatives of Petroleum Communications, Inc. ("PetroCom") and Bachow/Coastel, L.L.C. ("Coastel"), the cellular licensees for the Gulf of Mexico Service Area (collectively, "Gulf carriers"), met with staff members of the Commercial Wireless Division of the Wireless Telecommunications Bureau to discuss issues in the referenced proceeding. The following staff members attended the meeting: Wilbert Nixon, Linda Chang, Roger Noel, Jay Jackson, Michael Ferrante and Stephen Markendorff. PetroCom was represented by its President, John W. Payne, its engineering manager, Jerry Rosenbaum, consulting engineers James J. Keller and Tom L. Dennis, and its counsel, Richard S. Myers. Coastel was represented by its President, Robert Ivanoff, its Vice President, Salvatore A. Grasso, consulting engineer Tom L. Dennis, and its counsel, Richard Rubin. During the meeting, the Gulf carriers demonstrated that extensions of land-based carriers' signals into the Gulf resulted in the capture of the Gulf carriers' subscriber traffic, and that this capture problem could be resolved by adopting a new rule for defining the Gulf carriers' service and protection contours. The Gulf carriers also presented a proposal to permit them to deploy transmitters on land while granting land-based carriers the right to collocate facilities as such sites. A copy of the materials distributed during the meeting is attached hereto.

Please contact the undersigned if any questions should arise concerning this matter.

Very truly yours,

Richard S. Myers

Attachment
cc: FCC Staff Members

No. of Copies rec'd 0+1
List A B C D E

Cellular Service in the Gulf of Mexico

Agenda Items

- Coverage
- Interference/Subscriber Capture
- Boundary Definition
- Hybrid Propagation Formula
- Compromise Land Based Siting Privileges/Collocation

Coverage

- Coverage along the coastal border of Texas, Louisiana, Mississippi and Alabama is comprehensive and seamless.
  - Comprehensive coverage exists along coastal roads, on the beach and in coastal waters.
  - Overlapping coverage between land and Gulf carriers provides seamless coverage.
  - Gulf carriers have negotiated reciprocal extension agreements and collocation agreements with the land carriers.
  - FCC's role as facilitator of the process will bridge differences and further encourage cooperation between carriers.

The public interest is not served by changing a situation that is working well

Interference/Subscriber Capture

An interference problem occurs when one carrier captures the traffic in another carrier's territory because the former has a much stronger signal level in the latter's territory.

- The Gulf carriers are at a disadvantage with the current service contour formulas. Land carriers are capturing Gulf carriers' traffic in the Gulf carriers' service area (Exhibits 1,2).
  - Land carriers use a 6 ft AGL subscriber antenna versus a 30ft AGL subscriber antenna for the Gulf carriers.
  - Land carrier formula assumes a higher environmental noise floor versus the Gulf carriers.
  - Land based carriers' signals can extend into GMSA without permission of Gulf carrier.

A land carrier can engineer a system with service contours ending at the border and still cause significant capture of the Gulf carriers' traffic.

Interference (Cont'd)

- GTE's portrayal of Gulf carriers' signal dominance is not supported by actual data.
  - GTE uses a computer model to depict signal coverage but does not define the underlying assumptions and does not support the model with actual field data (Exhibit 3).
  - Gulf carriers' study (Exhibit 2) of the actual cellular coverage shows a different situation:
    - Actual engineering tests performed on the coastal road from High Island, TX to Freeport, TX (115 km),
    - Utilized industry standard signal level testing equipment, surveyed best signals for A and B carriers.

Interference (Cont'd)

- GTE's own 1995 study shows that it is the dominant carrier 15-20 km into the Gulf (Exhibit 2).
- GTE provides coverage plots (Exhibit 3) only showing one cell site without showing coverage from adjacent sites. Its allegations of unauthorized roaming are not supported by its own data (Exhibit 4).

At no time do the Gulf carriers have a stronger signal than the land carriers.

Interference (Cont'd)

- Borders between cellular carriers are regulated by FCC rules providing equal protection for each carrier
  - All carriers want the highest quality coverage within their territories and at the borders.
  - A reciprocal regulatory framework encourages carriers to negotiate mutually satisfactory agreements.
  - The land carriers depict the "Beach" as something different than what it is … a border between two carriers.
  - Gulf carriers have reached contour extension agreements and/or collocation agreements with land carriers.

Keeping regulatory parity will continue to encourage cooperation

Boundary Definition

- Current definition of service area boundary has led to disagreements between the land carriers and the Gulf carriers … terms such as bays and barrier islands are interpreted differently by different carriers.
- An informally issued FCC map has led to other issues.
  - The map was not part of a rulemaking.
  - The map does not have any latitude/longitude points, making it unsuitable for engineering.
  - The map does not show enough detail for engineering.

The FCC should define and depict the border on 1=24,000 scale US Geological Survey Maps.

Hybrid Propagation Formula (Exhibit 5)

- Gulf carriers would have their CGSAs defined by the current water formula per section 22.911(A)(2).
- Gulf carriers would be required to limit their service contour using the 32 dbu land formula at the boundary per section 22.911 (A)(1).
- Land carriers would continue to use the 32 dbu contour to limit their service contour at the boundary per section 22.911(A)(1).

This approach will solve the issue of the land carriers capturing Gulf carrier subscribers in the Gulf carriers' service areas.

Compromise Land Based Siting Privileges/Collocation

- Grant Gulf carriers the unilateral right to locate new transmitters on land by meeting a measured signal ratio test.
  - The signal ratio test would require the Gulf carriers' signal to remain 6db below the land-based carriers' signal at all points over land except the near field (within 100 meters of collocated transmitters and with 250 meters of a Gulf carriers non-collocated transmitter).
- For all new land based sites within 3 miles from the beach boundary, Gulf carriers have the right to collocate.
- Mandatory collocation rights are granted to the land carriers on all Gulf carrier land based sites.
- Existing collocation arrangements show the proposed collocation rule will work (Exhibit 6).

Summary

- Computer based radio engineering data presented by GTE does not accurately depict current cellular coverage.
- The Gulf carriers are currently experiencing interference and subscriber capture problems in their areas.
- The proposed hybrid formula and reciprocal siting privileges address the court's remand and are in the public interest.

Exhibit 1: Excerpts from FCC filings made by land-based carriers showing coverage into the Gulf

Ex. 1A: GTE

Ex. 1B: Rural Cellular, Inc.

EX. A1: Excerpts from GTE "alternative propagation" application filed on March 12, 1993

Response to 47 CFR 22.903(b) and 22.913(a)(1) -
CGSA Map and Statement Supporting Alternative CGSA Determination

Applicant seeks herein to have its Cellular Geographic Service Area adjusted to conform with the actual coverage being provided to customers in the Galveston - Texas City, TX MSA ("the Galveston MSA") as supported by the alternative propagation information contained in this application and as shown on the map included as part of this Exhibit No. 4. No changes to individual cell sites are sought in this application. Schedule Bs for the cells from which alternative propagation is requested are included with this application. The operational parameters of these cells will not change; however, the Tables MOB-3 in the Schedule Bs included herewith reflect radial information derived from alternative propagation, not 32 dBu contours.

The Cellular Geographic Service Areas ("CGSAs") of the Houston/Galveston-Texas City/Austin/Beaumont-Port Arthur/Bryan-College Station/Victoria MSAs and the Texas 11-Cherokee/Texas 16-Burleson/Texas 17-Newton/Texas 21-Chambers RSAs have been combined under authorization FCC File No. 06028-CL-MP-90 granted on September 14, 1990.

As specified in Rule Section 22.913(a)(1), a composite topographic map with a scale of 1:250,000 depicting the Galveston MSA, the current CGSA for the Galveston MSA (the "E" line), the existing cell sites and their 32 dBu contours (the "O" line), alternative propagation reliable service contours (the "A" line) and the proposed CGSA as determined by use of alternative propagation studies (the "P" line) are provided with this exhibit. In addition, this exhibit includes, as page 6, an 8½ x 11 inch reduced copy of the 1:250,000 scale map as required by Section 22.903(a).

GTE Mobilnet of South Texas Limited Partnership currently provides reliable cellular mobile telephone service to areas in the Galveston MSA which the 32 dBu contour measurement standard does not depict. Applicant submits the enclosed supporting signal propagation data to prove that it provides reliable cellular mobile telephone service beyond the boundaries of the 32 dBu contour. Specifically, Applicant supports herein that reliable cellular coverage is provided to the Bolivar Peninsula portion of the Galveston MSA.

Since the Commission has adopted the 32 dBu contour formula method to determine the reliable service area of a particular cell, and all radio frequency measurement tools and propagation models used by the Applicant use dBm as the unit of measurement, it is necessary for us to convert dBu to dBm. At cellular frequencies, 32 dBu equates to -100 dBm. Taking this standard conversion into consideration, any signal level of coverage greater than -100 dBm would be considered reliable service under the Commission's new definition of reliable service area.

Both propagation studies indicate that reliable cellular service is being provided to the Bolivar Peninsula in the Galveston MSA. The 32 dBu service contour is based on averages and idealized conditions. Using the two propagation studies mentioned above, we are able to more accurately determine the limit to reliable cellular service in this particular area taking into account the unique vegetation and elevation features. By comparing the composite coverage plot (the predicted coverage created by a computer model) with the field strength measurement test (an extensive drive test to assess and verify the reliable service predicted by the computer model), we have determined that the composite coverage plot is very accurate.

Conclusion

The fact that this area of additional coverage along the Bolivar Peninsula is substantial is readily apparent from a cursory review of the map provided herewith. The area of additional reliable service coverage, beyond that predicted by the 32 dBu contours, envelops the entire Bolivar Peninsula and a significant portion of Galveston Bay. In terms of square mileage, the substantial nature of this area is quantifiable. The area of reliable cellular service comprising the Galveston cell site calculated using a 32 dBu contour is 461 square miles. By using the alternative terrain model described in this application to predict reliable service area, this same cell site provides reliable service to an area of 699 square miles (excluding any coverage over water areas in the Gulf of Mexico not covered by the previously authorized Galveston cell site).[2] This represents a 52% increase in the total area to which reliable cellular service is provided by this cell site. Using the 32 dBu contour formula, the total square mileage of reliable cellular service provided by the Chambers cell site is 957 square miles. However, the alternative terrain model described in this application predicts that this same cell site provides reliable cellular service to an area encompassing 1,875 square miles (excluding any coverage over water areas in the Gulf of Mexico not covered by the previously authorized Galveston cell site).[3] This is a 96% increase over the 32 dBu contour formula method.[4]

The method of determining a Cellular Geographic Service Area as set forth in Rule Section 22.903(a) does not accurately depict the geographical reliable cellular coverage area along the Bolivar Peninsula in the Galveston MSA, as illustrated by the composite coverage plot and the field strength measurement test contained in exhibits to this application.

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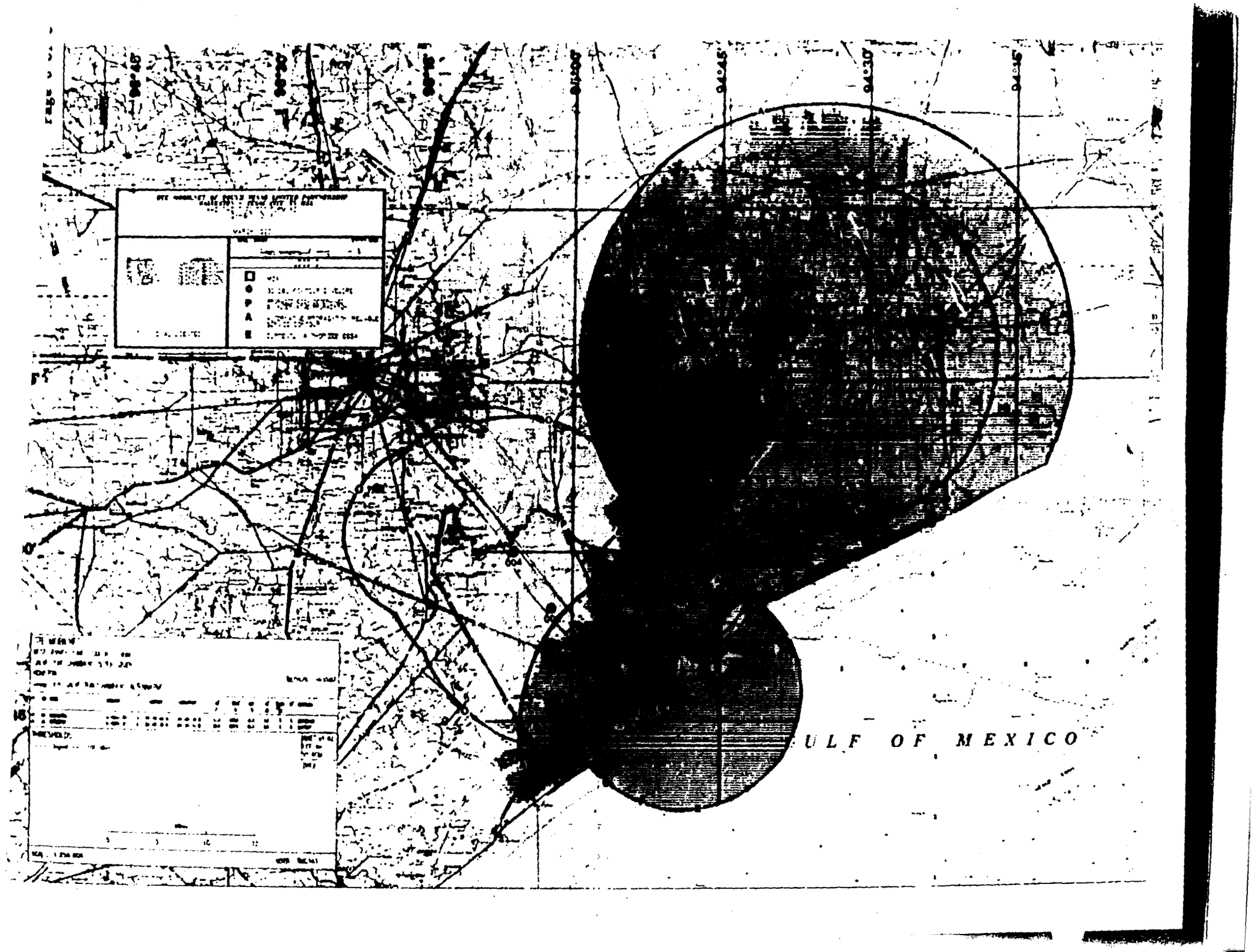
[2]Square mileage figure reflects total area within the "A" line of the Galveston cell only, on the enclosed map.

[3]Square mileage figure reflects total area within the "A" line of the Chambers cell only, on the enclosed map.

[4]Much of the remaining coverage of the Galveston cell site predicted by the alternative propagation study lies within the Galveston MSA and is already within the contour of another cell. Similarly, the alternative propagation plot for the Chambers cell site also predicts additional coverage within areas of the Texas 21 - Chambers RSA and the Galveston MSA which are served, according to the alternative propagation study, from other cell sites. Applicant is requesting that the CGSA be augmented only as described herein and depicted in the attached map.


GULF OF MEXICO

EX A2: Excerpts from Rural Cellular, Inc. "alternative propagation" application filed on March 20, 1995

EXHIBIT 2
ENGINEERING STATEMENT
TEXAS #20 Rural Cellular, Inc.
Market 670A, Texas #19 - Atascosa RSA

March 15, 1995

The applicant is the licensee of the Domestic Public Cellular Radio Telecommunications Service Station KNKN525 and is authorized to operate a 16 cell system to serve Texas RSA 19 - Atascosa. The Applicant currently has one major modification application pending for the Lopeno cell before the Commission for modification. With this instant application, Texas #20 Rural Cellular, Inc. is proposing the use of an alternative propagation methodology to determine the distance to the Service Area Boundary contour for 11 of the 16 currently authorized cells. There are no changes proposed to the operation of the system, or to the parameters of any pending modification. The Applicant does not seek any enlargement of its CGSA outside TX RSA 19, only within it.

In the event that the Commission denies the proposed major modification Texas #20 Rural Cellular, Inc. request that it be given the opportunity to modify its proposed design

This application has been prepared pursuant to 47 CFR Section 22.911(b), which allows a carrier to submit alternative propagation studies "using methods appropriate for the 800-900 MHz frequency range, including all supporting data and calculations, and / or by extensive field strength measurement data" where the carrier "...believes that the method prescribed in paragraph (a) of this section produces a CGSA that departs significantly (+ 20% or better) from the geographical area where reliable cellular service is actually provided...". The applicant will demonstrate that the methods used for calculation are based upon sound engineering principles for 800 MHz

propagation and that the alternative method results in an increase in the size of the CGSA of 22.0 % within the TX RSA 19 boundary.

Introduction

The Commission allows for the use of three methods to support an alternative CGSA proposal; 1. Propagation predictions using an uncalibrated prediction model, 2. Propagation predictions using a prediction model which has been calibrated using field strength measurement data, or, 3. Collection of extensive field strength measurements. In support of this application, Texas #20 Rural Cellular, Inc. has chosen to perform a set of field strength measurements throughout TX RSA 18, TX RSA 19, and TX RSA 20 ("The South Texas Region"). These field strength measurements are then used to calibrate a well known and accepted propagation model, utilizing parameters within the model which are supported by a statistically significant number of measurements.

The software package which contains the propagation model used in support of this application is *WIZARD*. *WIZARD* is a commercially available software package created by TEC CELLULAR, Inc.. The propagation model itself is based upon two well known and proven prediction models; W.C.Y. Lee's Model and the Hata / Okumura Model. The model itself is clearly described in Exhibit 3, "*WIZARD* Application Note 1, The *WIZARD* Macrocell Propagation Models and Getting the most from your Propagation Model Predictions". W.C.Y Lee's Model predictions are based on the use of a slope and intercept value for a given market area. If the correct values of slope and intercept are used for a market then predictions will compare well against actual measurements. W.C.Y Lee's Model is ideally suited to calibration for a given market area by collecting measured data over a market area, making predictions for the area where measurements have been collected, comparing the propagation predictions against the collected measured data, and modifying slope and intercept values to best fit the measured data. The last two items are

accomplished in *WIZARD* while the measurement data can be collected using any number of commercially available cellular signal measurement devices

Data Collection

The approach to the collection of data, post processing of data, and optimizing predictions against measurements is as follows. Over the South Texas Region Licensed to TEXAS #20 RURAL CELLULAR, INC. signal scanning data was collected on those control channels which originated from sites located inside the cellular service area. The signal level measurements were collected using a LCC Cellumate Model 1000 operating in the scanning mode. The LCC Cellumate Model 1000 is programmed to collect signal level measurements on twenty one of the cellular control channels, reporting the 21 channel measurements approximately at least once every 5 seconds. The location of each measurement was determined by use of a GPS unit with measurement and location data recorded and stored on a laptop computer for subsequent processing. Measurements were taken on major roadways in South Texas Region. The Cellumate device was calibrated in accordance with manufacturers instructions prior to taking the measurements.

The Propagation Model

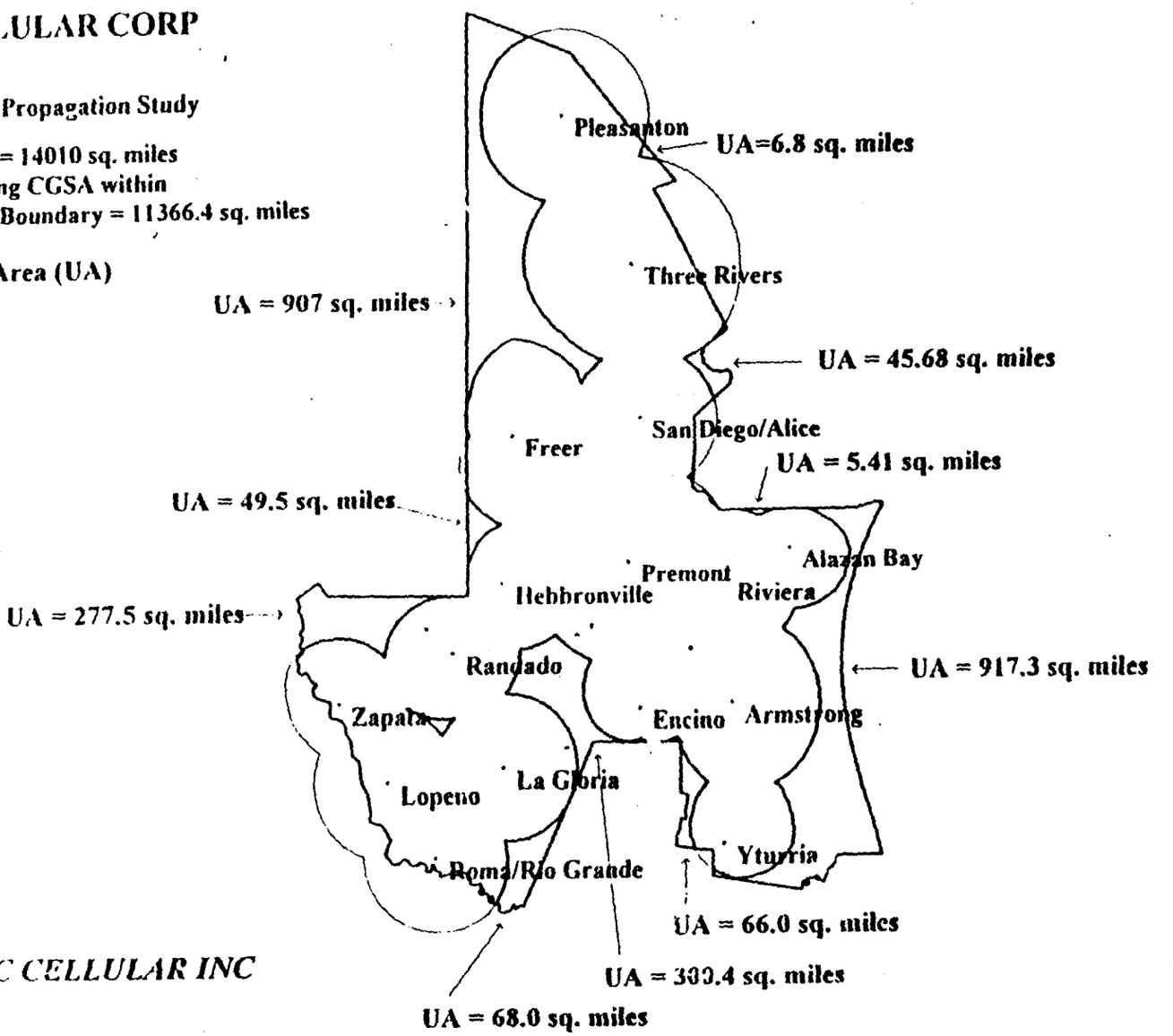
The W.C.Y. Lee propagation model can be used in an area mode or a point to point mode. In the area mode no information about the terrain between the transmitter and receiver location is used to predict the resulting signal coverage. For this mode general slope and intercept values are used to infer the probability of receiving a given signal level above a given threshold level. In the point to point mode the terrain profile between the transmitter and receiver is used to estimate the additional losses or gains to the area predictions which result from such factors as knife edge diffraction, the slope of the terrain, and antenna pattern effects. For this alternate showing the W.C.Y. Lee point to point propagation prediction model will be used. The prediction accuracy in the point to point mode is improved significantly over that of the area mode because actual terrain information is used.

US CELLULAR CORP

TX RSA 19
Alternative Propagation Study

TX RSA 19 = 14010 sq. miles
Total Existing CGSA within
TX RSA 19 Boundary = 11366.4 sq. miles

Unserved Area (UA)

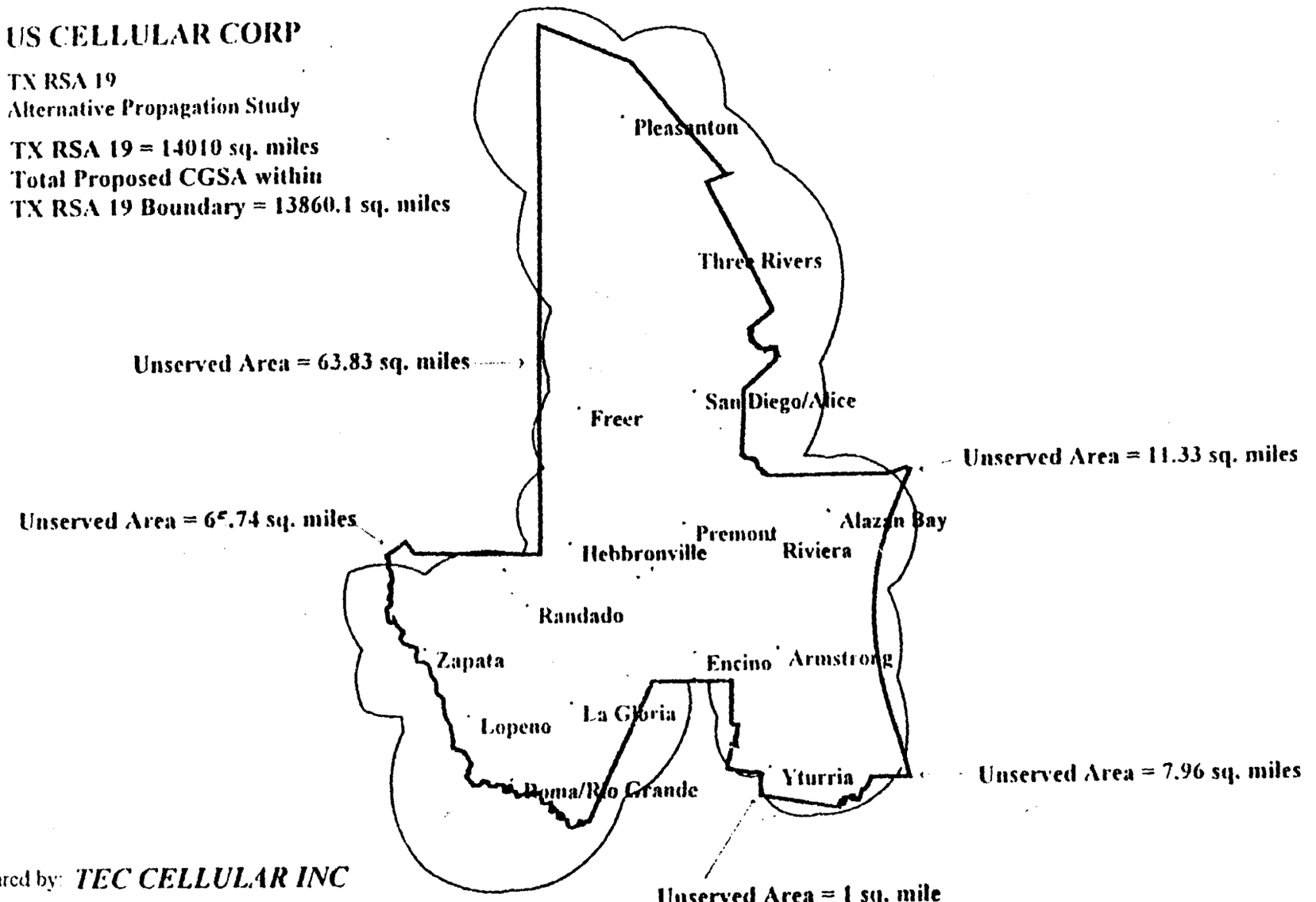


Prepared by: *TEC CELLULAR INC*
3/14/95

US CELLULAR CORP

TX RSA 19
Alternative Propagation Study

TX RSA 19 = 14010 sq. miles
Total Proposed CGSA within
TX RSA 19 Boundary = 13860.1 sq. miles



Prepared by: *TEC CELLULAR INC*
3/14/95

Exhibit 2: Tom Dennis Report: Test drive data showing land-based carriers as dominant carriers along coastal border

ENGINEERING REPORT

CELLULAR SIGNAL STRENGTH MEASUREMENTS ALONG THE TEXAS GULF COAST

TOM L. DENNIS, P.E.

Recognizing that the GTE ex parte presentation made to the FCC on November 18, 1997 was based on computer models that were not verified by actual field data, it was decided that actual measurements along the Gulf Coast, particularly in the area depicted in the GTE Exhibit II, should be undertaken and documented.

BACKGROUND INFORMATION:

Prior data had previously been collected in the Gulf of Mexico in order to prepare a response to the Further Notice of Proposed Rulemaking, CC Document No. 90-6 (released October 1991). In addition, measurements had been made from a test site at the Flagship Hotel in Galveston, Texas in support of a cell site application at this location. More recently, additional engineering data had been collected and included in the Coastel reply comments to WT Docket 97-112/CC.

All of the above referenced data demonstrate that GTE is "best server", i.e. the carrier with the greatest signal strength, for as much as 20 kilometers off the Texas shoreline and presently averages about 15 kilometers offshore. This is shown in the coverage plot prepared by GTE in 1995 and included as Exhibit II to this report.

Prior data collected from the test site at the Flagship Hotel also showed that it would not be possible to install a cell site at this location which would be stronger than GTE in the Gulf. The Flagship test site was operated at 100 watts ERP and beamed into the Gulf. Exhibit I shows that the GTE Galveston cell site was always best server, regardless of how far one was offshore. This was due to the height advantage of the GTE site (200 feet); a height not available at the Flagship Hotel nor generally available on an offshore platform.